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(19) (CA) **CANADIAN PATENT** (12)

(54) Device for Attaching a Rail to the Side of a Bed, in
Particular of a Hospital Bed

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Abstract of the Disclosure

The present publication describes a device for attaching a rail, in particular a collapsible rail, to the side of such a bed, in particular a hospital bed, in which the side construction comprises a rigid beam, e.g., a tube, in the longitudinal direction of the bed. The said device comprises a bushing construction to be attached rigidly in connection with the side beam of the bed into which
10 construction the fastening pin of the rail can be pushed. The device comprises a rod construction fitted transversally underneath the bed and comprising two rods as well as a tensioning member for setting the length of the rod construction. A grasping member following the outer profile of the side beam, on the one hand, and the said bushing construction, on the other hand, are rigidly fixed to the outer end of each rod, so that, when the tensioning member is being tensioned, the overall length of the rod con-
20 struction is reduced and the grasping members are pressed from outside against the side beams, locking the bushing construction in the receiving position.

Device for attaching a rail to the side of a bed, in particular of a hospital bed

The present invention is concerned with a
5 device for attaching a rail, in particular a collapsible rail, to the side of such a bed, in particular a hospital bed, in which the side construction comprises a rigid beam, e.g. a tube, in the longitudinal direction of the bed, the said device comprising a bushing construction or equivalent to be attached rigidly in connection with the side beam of the bed, into which construction the fastening pin of the rail can be pushed
10 from above, by-passing the side beam.

For example, in hospitals, great advantage
15 has been obtained from a new type of a bed rail, which can be made to collapse in the vertical direction easily by a movement of the hand. This rail facilitates the treatment of patients, the work of the personnel, and increases the safety. This said rail solution is also
20 applicable to stretchers, to beds in ships and trains, as well as to many other purposes. The fastening of such a rail to new beds and equivalent can be arranged easily if the new bed is provided with suitable fixing members right at the manufacturing stage.

25 In hospitals, homes for aged people, and elsewhere, there are great numbers of old beds which might be otherwise fully usable, but their construction lacks suitable fixing members for attaching the rail. It would be in itself possible to attach such a rail to
30 old beds and equivalent, but that would require a change in the construction. In practice, it is, however, difficult to change the construction.

The object of the present invention is to eliminate this drawback and to provide a suitable fixing
35 support also for such beds as were not originally designed for use in connection with such a rail.



The invention is based on the idea that a separate rod construction is used which is tensioned transversally underneath the bed between the lateral beams, the fastening members being fitted at the ends
5 of the said rod construction.

More specifically, the device in accordance with the invention is characterized by a rod construction fitted transversally underneath the bed and comprising two rods as well as a tensioning member for
10 setting the length of the rod construction, whereat a grasping member following the profile of the lateral beam, on one hand, and the said bushing construction, on the other hand, are rigidly fixed to the outer end of each rod, so that, when the tensioning member is being
15 tensioned, the overall length of the rod construction is changed and the grasping members are pressed against the lateral beams, locking the bushing construction in the receiving position.

By means of the invention, considerable
20 advantages are achieved. Thus, for the purpose of attaching the rail, no laborious changes in construction have to be performed on the bed itself. The operation can be carried out easily, even so that the patient may be in his bed during the fastening. By means of the
25 present invention, it has been possible to permit the use of the useful rail solution even in older bed embodiments, as well as in beds which, for some reason or another, have not been provided with the necessary fastening members at the manufacturing stage.

30 The invention will be examined in more detail in the following with reference to the exemplifying embodiments shown in the attached drawings.

Figure 1 shows one device in accordance with the invention as viewed in the longitudinal direction
35 of the bed.

Figure 2 shows a second device in accordance with the invention, partly in section, as viewed in the

longitudinal direction of the bed.

Figure 3 shows a support plate to be used in connection with the invention, as viewed from above.

Figure 4 shows a third device in accordance
5 with the invention as viewed from below.

Figure 5 shows the device shown in Fig. 4, as a side view.

In Fig. 1, the bed comprises a bottom plate 8 and side beams 7 placed at both sides of the said bottom
10 plate, the said side beams being, in the example case, metal tubes of circular section. Underneath the bottom plate 8, support plates 4 are attached, which are not in themselves necessary from the point of view of the invention. The support plates 4 are provided with holes 19 of
15 circular section (cf. Fig. 3), through which holes the rods 1 and 3 have been passed, the said rods being likewise of circular section. Each rod 1 and 3 is, at its inner end, provided with a threading 20 and 21, respectively. These threads are of opposite senses, and they
20 fit in the inside threadings of the tensioning bushing 2 which operates as a tensioning member. A connecting disc 16 is fixed, diagonally to the axis of the rods, to the end of each rod 1 and 3, preferably by welding. To the lower edge of the outside of this connecting
25 disc, a cylindrical bushing construction 6 is fitted so that its axis is parallel to the face of the connecting disc 16. The bushing construction 6 is provided with an axial bore 17, into which the fastening pin of the rail to be attached can be fitted.

30 A grasping member 5, of a sectional shape of an arc of a circle, following the outer profile of the side beams 7, is attached to the upper end of the connecting disc, likewise by welding. When the tensioning bushing 2 is turned in the tensioning direction, the overall length of the rod construction 1, 3
35 is reduced as the rods 1 and 3 approach each other, and the grasping members are pressed from outside against

the side beams 7, locking the bushing construction 6 in the receiving position.

In the case shown in Fig. 2, the rods 1 and 3 are tube constructions moving telescopically into each other. In this case, the tensioning member is a screw 9, which, supported against a shoulder 10 on the thicker tube construction 3, is arranged so that, when turned, it shifts the thinner tube construction 1 axially by means of a corresponding threading provided therein. The connecting disc 16 is provided with an opening 18, through which the screw 9 can be threaded so as to produce the tensioning movement.

The support plate 4 shown in Fig. 3, which is supposed to be attached to the bottom face of the bottom plate 8 of the bed, is provided with a hole 19, which is intentionally placed eccentrically, whereby by means of the same plate, it is possible to obtain four different possibilities of positioning, namely b1, b2, b3, and b4.

The solution shown in Figures 4 and 5 can be used when the bottom plate 8 of the bed is sufficiently robust. In such a case, the plate 12 is attached to the bottom plate 8 of the bed by means of rivets 15. The projecting beam 13 is again attached to the bottom of the plate 12 by welding, and its outer end is provided with a bushing construction 6. The upper edge of the projecting beam 13 is provided with a curved support disc 14 following the profile of the lower portion of the side beam 7 of the bed.

Within the scope of the invention, it is also possible to conceive of solutions differing from the exemplifying embodiments described above. Thus, the grasping members may also be made so that they follow the inner profile of the side beams, in which case, when the tensioning member is being tensioned, the overall length of the rod construction is increased. It should be stated finally that the bushing construction

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designed for attaching the rail may be provided, e.g.,
with threading so as to strengthen the attachment.

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The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. Device for attaching a rail, in particular a collapsible rail, to the side of a bed, in which the side construction comprises a rigid beam in the longitudinal direction of the bed, the said device comprising a bushing construction to be attached rigidly in connection with the side beam of the bed, into which construction a fastening pin of the rail can be pushed from above, by-passing the side beam, characterized by a rod construction fitted transversally underneath the bed and comprising two rods as well as a tensioning member for setting the length of the rod construction, and a grasping member following the profile of the side beam, on the one hand, and the said bushing construction, on the other hand, and being rigidly fixed to the outer end of each rod, so that, when the tensioning member is being tensioned, the overall length of the rod construction is changed and the grasping members are pressed against the side beams, locking the bushing construction in the receiving position.
2. Device as claimed in claim 1, characterized in that the inner ends of the rods are provided with outside threads of opposite direction and the tensioning member comprises a tensioning bushing, both of the ends of the said tensioning member being provided with inside threads corresponding to the outside threads on the inner ends of the rods.
3. Device as claimed in claim 1, characterized in that the rods are tube constructions moving telescopically one into the other and the tensioning member comprises a screw which, being supported on a shoulder in the thicker tube construction, is arranged

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so that, on being turned, it shifts the thinner tube construction axially by the intermediate of a corresponding thread provided in same.

4. Device as claimed in claim 1, characterized in that the bushing construction and the grasping member are interconnected rigidly by means of a connecting disc fitted diagonally in relation to the axis of the rod construction.

5. Device as claimed in claim 4, characterized in that the bushing construction is attached to the outer face of the connecting disc so that its axis is parallel to the face of the disc.

6. Device as claimed in claim 1, characterized in that the profile of the grasping member has the form of an arc of a circle.

7. Device as claimed in claim 1, characterized in that the grasping member has been made such that it follows the outer profile of the side beam, whereby, when the tensioning member is being tensioned, the overall length of the rod construction is reduced.

8. Device as claimed in claim 1, characterized in that the grasping member has been made such that it follows the inner profile of the side beam, whereby, when the tensioning member is being tensioned, the overall length of the rod construction is increased.

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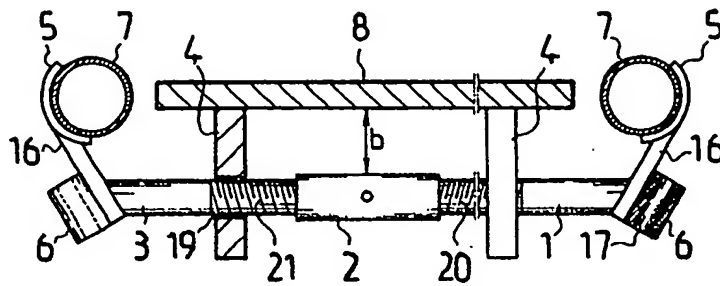


Fig. 1

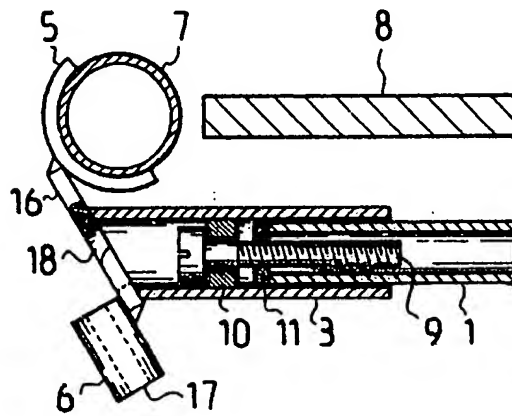


Fig. 2

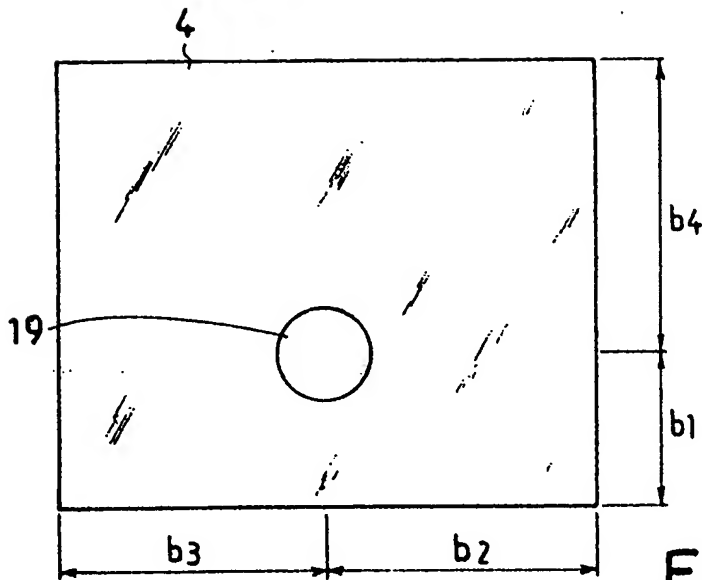


Fig. 3

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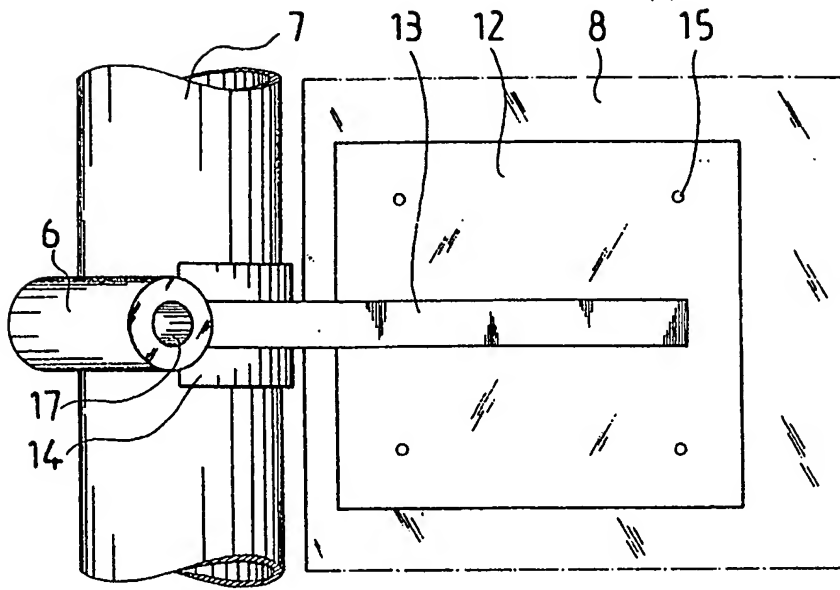


Fig. 4

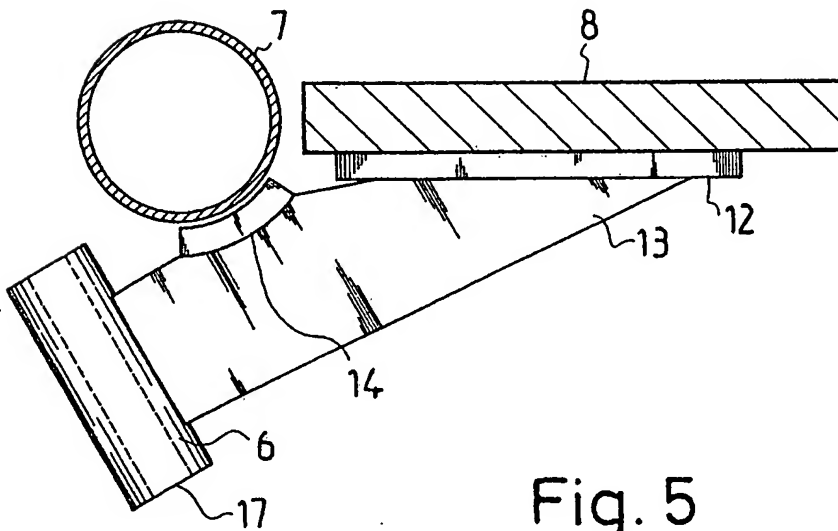


Fig. 5

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